

preserved ; and the bones, scales, teeth, and vertebræ are met with, occasionally, in almost all the strata that contain fossil shells, whether secondary or tertiary. Many of the species bear a close resemblance to species at present existing, either in the ocean or in rivers.

The bones and entire skeletons of reptiles, allied to the saurian or lizard class, occur in the lower part of the secondary strata, and are very abundant in a dark argillaceous limestone called lias, and in the beds of clay that are over it. These animals are, many of them, different from any known existing genera : they were inhabitants of the ocean, and furnished with paddles instead of feet.* In the upper secondary strata, between the lias and chalk, the remains of other saurian animals, closely allied to living species of crocodiles and lizards, are fully developed : they had feet, and were evidently amphibious. Of the saurian animals in this series, that called the iguanodon, discovered by Mr. Mantell, near Cuckfield, in Sussex, is the most remarkable for its size ; the length exceeding eighty feet, and the thickness of the body being equal to that of the elephant. It is supposed to have been herbivorous. It closely resembles, in structure, the iguana, a native of America and the West Indies.

The fossil remains of birds are so rare, that their occurrence, in any of the regular strata, was long considered doubtful. The bones, recently discovered in some of the English secondary strata, supposed at first to be those of birds, belong to species of flying lizards. Bones of birds are, however, found in some of the tertiary strata, particularly in the gypsum near Paris.

Vertebrated animals of the highest class, the mammalia, occur in the tertiary strata, and in ancient beds of gravel and clay. Cetaceous animals, allied to the whale and seal, have been found in some of the tertiary strata ; but they are by no means common. The bones of herbivorous land quadrupeds occur in the upper part of the tertiary beds, or what may be regarded as the latest geological formations : they are, more frequently, found in beds of clay and gravel than in the solid strata. Cuvier has ascertained the existence of fossil bones belonging to about seventy species of mammiferous quadrupeds, in the tertiary strata near Paris. Nearly forty of these are of

* The ichthyosaurus, or fish lizard, had an organisation intermediate between that of a lizard and a fish : its paddles were long, broad, and flat, to enable it to move rapidly through the water : the orbits of the eyes are enormously large. Four species have been ascertained ; some are of immense size. The Plesiosaurus, another genus more nearly approaching the organisation of the lizard, is distinguished from all oviparous quadrupeds by the form of its neck, which is longer than its body, and is composed of no less than thirty vertebræ, exceeding in number those in the neck of the swan. This animal is supposed to have swum on the water, with its neck arched to dart on its prey. The *Testudo ferox*, living in the rivers in Florida, is somewhat similarly constructed : it hides itself in reeds, and darts out its head, suddenly, to seize birds and other animals. There are five species of the Plesiosaurus, some of them were more than twenty feet long. Remains of flying lizards have been discovered in a fossil state in Germany, and very recently in Oxfordshire and Dorsetshire.